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### REMARKS

Applicants appreciate the Final Office Action of June 30, 2005. Applicants submit that there is support in the specification for the amendments made in Applicants' previous response and that the claims are in compliance with 35 U.S.C. § 112 for at least the reasons discussed herein. Applicants further submit that the pending claims are patentable over the cited references for at least the reasons discussed herein. Accordingly, Applicants respectfully submit that the present application is in condition for allowance, which is respectfully requested in due course.

#### The Information Disclosure Statements

Applicants wish to bring to the Examiner's attention Information Disclosure Statements that were filed August 10, 2004 and June 22, 2005. Both of these IDSs appear in PAIR. Courtesy copies of the 1449s are attached hereto for the Examiner's reference. Applicants respectfully request that the Examiner return initialed copies of the PTO-1449 forms for these IDSs with any subsequent communication.

#### The Amendments are Supported by the Specification and Figures

The specification stands objected to as failing to provide proper antecedent basis for the claimed subject matter. *See* Final Office Action, page 2, paragraph 4. In particular, the Final Office Action states: "the specification does not appear to support the new limitation recited in claims 1, 24 and 26 of "determining *at the data processing system executing the application* if a received request for the data processing system to originate a connection is associated with the application." *See* Final Office Action, page 2, paragraph 4 (emphasis in original). Applicants respectfully disagree for at least the reasons discussed herein.

In particular, as discussed in the specification of the present application, the method of Claim 1 may be carried out by a source address selection module or circuit 62 according to some embodiments of the present invention. *See* Specification, pages 17-20 and Figures 1 through 3. Claims 24 and 26 contain corresponding system and computer program product recitations. As stated in the Specification:

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Figure 1 also illustrates the servers 52 and 54 having a source address selection module or circuit 62. The source address selection module or circuit 62 may function as described herein to *associate predefined common IP addresses with a particular instance of an application, such as the application 63 illustrated in Figure 1*. Such an association may allow an application which does not specify a source address for an outbound connection to utilize the common IP address for the outbound connection. Thus, even if an application is moved from one server to another, the same common IP address may be utilized. Such may be accomplished without requiring the application to specify the particular IP address. Accordingly, portability and/or flexibility of the application between servers in a cluster and/or cluster configuration may be improved. Furthermore, address selection according to embodiments of the present invention may be provided alone or in combination with cluster-wide port assignment as described herein. . .

Operations for initialization of a source address selection module or circuit 62 according to embodiments of the present invention will now be described with reference to Figure 2. As seen in Figure 2, *it may be determined if a configuration specification for a data processing system, for example for a communication protocol stack of the data processing system, includes a statement which identifies a source IP address and one or more application instances which are associated with the source IP address* (block 200). If so, the data processing system associates the application instance(s) and the specified source IP address (block 210). Such associations may be provided on multiple data processing systems and, in fact, the same source IP address may be associated with application instances on different data processing systems.

Figure 3 illustrates operations of an address selection module or circuit 62 for source address selection for an outbound connection request according to embodiments of the present invention. As seen in Figure 3, it is determined if the application instance requesting the outbound connection has specified an IP address for the connection, for example, by binding the socket for the connection to a specific IP address (block 300). *If the application did specify an IP address, the connection request is processed in a conventional manner (block 330) and the connection established utilizing the IP address selected by the application* (block 320). If, however, the application instance has not specified an IP address (block 300), an identification of the application instance is obtained (block 305) to determine if a dynamic IP address is associated with the application instance (block 310). If a dynamic IP address is associated with the application instance (block 310), the associated dynamic IP address is selected as the source address for the connection (block 315) and the connection is established using the selected address as the source address (block 320).

If a dynamic IP address is not associated with the application (block 310), a source IP address is selected utilizing conventional address selection procedures (e.g. specification of a static VIPA via a SOURCEVIP statement)(block 325) and the connection is established using the conventionally selected address as the source address (block 320). However, other operations may be carried out, for example, an error message may be

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generated or other mechanisms for selecting a source address for the connection request could be carried out. Such operations are beyond the scope of the present invention and, therefore, will not be described further herein.

See Specification, page 17, line 31 to page 20, line 7 (emphasis added). Thus, as discussed in the cited portion of the specification, the source address selection module or circuit 62 may be configured to carry out the method of Claim 1. As illustrated in Figure 1, each server (data processing system) 52 and 54 may include a source address selection module or circuit 62, thus, the server 52 or 54 running the application 53 may also include an address selection module 62 that carries out the method of Claim 1. Accordingly, the newly added recitations of Claims 1, 24 and 26 are clearly supported by at least the cited portion of the specification. Accordingly, Applicants respectfully request withdrawal of the objections with respect to these claims.

#### **The Claims are in Compliance with Section 112**

Claims 1-4, 24 and 26 stand rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement. See Final Office Action, page 2, paragraph 6. In particular, the Final Office Action states: "the original disclosure does not appear to be enabling for the new limitation of *"determining at the data processing system executing the application if a received request for the data processing system to originate a connection is associated with the application."* See Final Office Action, page 3, paragraph 6 (emphasis in original). For at least the reasons discussed above with respect to the objection to the specification, Applicants respectfully submit that this recitation of Claims 1, 24 and 26 is enabled by the specification. In particular, as stated in the specification:

Operations for initialization of a source address selection module or circuit 62 according to embodiments of the present invention will now be described with reference to Figure 2. As seen in Figure 2, *it may be determined if a configuration specification for a data processing system, for example for a communication protocol stack of the data processing system, includes a statement which identifies a source IP address and one or more application instances which are associated with the source IP address* (block 200). If so, the data processing system associates the application instance(s) and the specified source IP address (block 210). Such associations may be provided on multiple data processing systems and, in fact, the same source IP

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address may be associated with application instances on different data processing systems.

See Specification, page 18, line 25 to page 19, line 6 (emphasis added). Thus, according to some embodiments of the present invention, the source address selection module 62 of any data processing system, including the data processing system executing the application 63, may be configured to perform the determining step objected to by the Examiner. Accordingly, Claims 1-4, 24 and 26 are enabled for at least these reasons. Accordingly, Applicants respectfully request withdrawal of the 112 rejections with respect to these claims.

**The Claims Are Patentable over the Cited References**

A. Claims 1-4, 24 and 26 stand rejected under 35 U.S.C. § 102(b) as being anticipated by "The Next Step in Server Load Balancing" from Alteon Web Systems (hereinafter "Alteon"). See Final Office Action, page 3, paragraph 8. Applicants respectfully disagree. For example, Claim 1 recites:

A method of establishing a connection originated by an application executing on a data processing system in a cluster of data processing systems, the method comprising the following carried out by the data processing system executing the application:

associating a dynamic network address with the application at the data processing system on which the application is executing;  
determining at the data processing system executing the application if a received request for the data processing system to originate a connection is associated with the application; and  
establishing the connection from the data processing system executing the application utilizing the associated dynamic network address as a source address for the connection if the request is associated with the application.

Claims 24 and 26 contain corresponding system and computer program product recitations, respectively. Applicants respectfully submit that at least the highlighted recitations are neither disclosed nor suggested by Alteon.

As a preliminary note, the Final Office Action contain "Examiner's Interpretation" sections on pages 3 and 6 thereof. This portion of the Office Action states:

The Examiner interprets that Alteon teaches originating the connection at the application executing on the data processing system, because originating

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*the connection* does not necessarily require originating *the connection request*. In other words, Alteon teaches that the client originates the connection request (see pg. 1, Overview and pg. 5, TCP/IP Server Load-Balancing Operation). However, the connection itself is not established until the application sends a response to the client, which response includes the binding VIP address. Therefore the connection itself originates at the application.

See Final Office Action, page 3, paragraph 9 and page 6 paragraph 16 (emphasis in original). Applicants respectfully submit that the stated interpretation is improper and that the Examiner cannot just interpret the references in such a way so that the teachings read on the pending claims. Applicants submit that interpreting responding to a connection request from a client as "establishing the connection from the data processing system executing the application" is not a reasonable interpretation of the claim recitations and ignores the plain language of the claims.

Furthermore, a finding of anticipation requires that there must be no difference between the claimed invention and the disclosure of the cited reference as viewed by one of ordinary skill in the art. See *Scripps Clinic & Research Foundation v. Genentech Inc.*, 927 F.2d 1565, 1576, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991). In particular, the Court of Appeals for the Federal Circuit held that a finding of anticipation requires absolute identity for each and every element set forth in the claimed invention. See *Trintec Indus. Inc. v. Top-U.S.A. Corp.*, 63 U.S.P.Q.2d 1597 (Fed. Cir. 2002). One of ordinary skill in the art would not interpret responding to a connection request from a client to be absolutely identical to "establishing a connection from the data processing system executing the application." Thus, nothing in Alteon discloses or suggests establishing a connection as recited in Claim 1 for at least these reasons.

The Final Office Action states that each recitation of Claim 1 is taught by Pages 1 and 5 of Alteon. See Final Office Action, page 4, paragraph 10. Applicants respectfully disagree. In particular, Alteon discusses load balancing, *i.e.*, distributing the load across a group of servers running a common application. See Alteon, page 1, Overview, paragraph 1. As discussed in Alteon, a switch receives connection requests from a client. The switch forwards the connection requests to a server (running an application) based on knowledge of the servers availability, load handling capability and present load. See Alteon, Overview, paragraph 2. Once the connection

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has been established (the session has been established), "the packets are processed and forwarded appropriately to make sure that the client continues to be associated with the same physical sever for the duration of the session." See Alteon, page 1, Overview, paragraph 3. In particular, the switch binds a session to the server's real IP address. See Alteon, page 5, TCP/IP Load-Balancing Operation, paragraph 1. The switch maintains a binding table, which maps the virtual IP address associated with the session to the real IP address of the server. See Alteon, page 5, TCP/IP Load-Balancing Operation, paragraph 1. The switch "performs address substitution so that the real server will transparently receive packets for that session." See Alteon, page 5, TCP/IP Load-Balancing Operation, paragraph 2 (emphasis added). The switch sits between the client and the server or group of servers, therefore, the switch may perform address substitution in both directions. See Alteon, page 5, TCP/IP Load-Balancing Operation, paragraph 4.

In contrast, Claim 1 recites associating a dynamic network address with the application at the data processing system on which the application is executing. Thus, the dynamic network address is associated with the application at the data processing system (server) executing the application. As discussed above, Alteon assigns and substitutes the virtual IP address at the switch and this substitution is transparent to the server. Thus, Alteon not only discusses the association at the switch, not at the server, but the server is not even aware of the association. Accordingly, nothing in the cited portion of Alteon appears to disclose or suggest associating a dynamic network address as recited in Claim 1.

The "Response to Arguments" section of the Final Office Action states that "the Examiner interprets the web switch as part of the 'cluster of data processing systems executing the application.'" See Final Office Action, page 13. Applicants, once again, respectfully submit that the Examiner cannot just "interpret" portions of a reference to read on the claims. Anticipation requires each and every element of the claims to be taught by a single reference. Furthermore, the switch of Alteon cannot be one of the servers of Alteon as the substitution of Alteon is "transparent" to the server. If the switch and the server were one and the same, this could not be the case. Furthermore, if the switch and the server were one and the same, why would the switch substitute a VIP address for its own real IP address. Accordingly, Applicants

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respectfully submit that Claim 1 is patentable over Alteon for at least these additional reasons.

Claim 1 further recites determining at the data processing system executing the application if a received request for the data processing system to originate a connection is associated with the application. Thus, it is determined if the request is associated with the application and it is done at the data processing system (server) executing the application. Again, as discussed above, the cited portion of Alteon discusses a switch that sits between the client and the server(s) that substitutes a virtual IP address for the real IP address of the server (and visa versa). The substitution is transparent to the server. Furthermore, Alteon discusses forwarding packets in the same "session." In particular, "the packets are processed and forwarded appropriately to make sure that the client continues to be associated with the same physical sever for the duration of the session." See Alteon, page 1, Overview, paragraph 3. Nothing in Alteon discusses determining if a request is associated with the application. Accordingly, Claim 1 is patentable over Alteon for at least these additional reasons.

The "Response to Arguments" section of the Final Office Action states that "the Examiner finds that the 'application' may be interpreted as the 'session' of Alteon, which runs on both the web switch and the server." See Final Office Action, page 13. Applicants once again point out that the Examiner cannot just "interpret" the reference so that it reads on the pending claims. Furthermore, Applicants respectfully disagree that the application of the present application may be interpreted as the session of Alteon. A session has a very distinct meaning in the art. A session is either a lasting connection using the session layer of a network protocol or a lasting connection between a user (or user agent) and a peer, typically a server, usually involving the exchange of many packets between the user's computer and the server. This definition of a session is clearly what is meant by the use of the term "session" in Alteon, as Alteon discusses that "all subsequent packets belonging to the session undergo the same address substitution process and are forwarded to the same real server until the switch sees a session termination packet." See Alteon, page 5, TCP/IP Load-Balancing Operation, paragraph 4. Accordingly, the session of Alteon cannot

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be interpreted as the application of the present invention as suggested in the Final Office Action for at least the reasons discussed herein.

Finally, Claim 1 further recites establishing the connection from the data processing system executing the application utilizing the associated dynamic network address as a source address for the connection if the request is associated with the application. As discussed above, the "Examiner's interpretation" on page 3 of the Final Office Action is improper. As discussed above, the connection in Alteon is not established at the data processing system (server) executing the application, it is established at the switch. Furthermore, Alteon only discusses the virtual IP address incorporated as a source address in the communications used between the switch and the client. See Alteon, page 5, TCP/IP Load-Balancing Operation, paragraph 4 ("the Web Switch intercepts packets traveling from the real server to the client and performs the reverse address substitution. It replaces the real server's actual IP address in the Network Layer source address field with the VIP and forwards each modified frame to the client."). Thus, if the connection between the switch and the server is considered the connection established at the data processing system executing the application, there is no use of the VIP between the server and the switch. Accordingly, nothing in Alteon discloses or suggests establishing a connection as recited in Claim 1 for at least these additional reasons.

Accordingly, independent Claims 1, 24 and 26 are patentable over Alteon for at least the reasons discussed above. Furthermore, Applicants submit that the dependent claims are patentable at least per the patentability of the independent base claims from which they depend.

B. Claims 5-13, 15-22, 25 and 27 stand rejected under 35 U.S.C. § 103 as obvious in light of Alteon in view of United States Patent No. 6,252,878 to Locklear, Jr. *et al.* (hereinafter "Locklear"). See the Final Office Action, 5. Claims 14 and 23 stand rejected as obvious based on Locklear, Alteon and Applicants' Alleged Admitted Prior Art regarding the OS/390 Sysplex. See Final Office Action, page 11 paragraph 34. Since these rejections appear to be identical to the rejections included in the First Office Action of September 1, 2004, Applicants will not repeat the arguments made responsive thereto, but will only address the "Response to Arguments" section of the Final Office Action. However, the relevant portions of



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Applicants' Amendment of December 1, 2004 are incorporated herein by reference as if set forth in their entirety. Thus, Applicants respectfully submit that Claims 5-23, 25 and 27 are patentable over the cited reference for at least the reasons discussed therein.

The "Response to Arguments" section of the Final Office Action states that Alteon properly anticipates the cited limitation of Claims 5, 15, 25 and 27. For example, Claim 5 recites:

A method of selecting a source address for a connection originated by an application executing on a data processing system in a cluster of data processing systems, comprising:

associating a dynamic virtual IP address (DVIPA) with the application at a communication protocol stack of the data processing system in the cluster of data processing systems executing the application so as to utilize the DVIPA as the source address for the connection originated by the application.

Claims 15, 25 and 27 contain similar recitations. As discussed above, the assignment and substitution of the VIP address of Alteon is performed at the switch in both directions, *i.e.*, coming from the client and from the server. The switch, as discussed above, is not part of the cluster of data processing systems as interpreted by the Examiner for at least the reasons discussed above. Thus, nothing in Alteon discloses or suggests associating a dynamic virtual IP address (DVIPA) with the application at a communication protocol stack of the data processing system in the cluster of data processing systems executing the application as recited in Claims 5 of the present application. Thus, Claims 5, 15, 25 and 27 and the claims that depend therefrom are patentable over the cited references for at least these additional reasons.

### CONCLUSION

In light of the above discussion, Applicants submit that the present application is in condition for allowance, which action is respectfully requested.

It is not believed that an extension of time and/or additional fee(s)-including fees for net addition of claims-are required, beyond those that may otherwise be provided for in documents accompanying this paper. In the event, however, that an extension of time is necessary to allow consideration of this paper, such an extension is hereby petitioned under 37 C.F.R. §1.136(a). Any additional fees believed to be

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due in connection with this paper may be charged to our Deposit Account No. 09-0461.

Respectfully submitted,



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